

REMARKS

The Final Office Action of August 20, 2008 has been carefully considered. Claims 8 and 22 have been amended. New claim 34 has been added. Claims 8, 10-16 and 22-34 are in this application.

Support for the amendment to claim 8 is found throughout the specification and in particular at ¶ 0017. No new matter has been entered.

The previously submitted claims 8, 10-16 and 30-33 were rejected under 35 U.S.C. § 102(b) as being anticipated or under 35 U.S.C. § 103(a) as obvious in view of JP 2000-113906 to Nishikawa et al. Applicant submits that Nishikawa et al. do not teach or suggest each of the elements of the present claims.

Nishikawa et al. disclose an organic electrolyte containing a nitrile compound having a general formula R1-COO-(CH)_a-CN, "a" stands an integer of 1-3. However, Nishikawa et al. do not teach or suggest a non-aqueous electrolyte for use in a lithium-ion battery in which the carbonate is chemically bonded to the carbon of the cyano group through no more than one carbon and the nitrile is electrochemically stable up to at least 4.2 volts.

Applicant has achieved unexpected results by using the claimed electrolyte as shown in the Declaration of Luying Sun submitted herewith. The claimed electrolyte is electrochemically stable up to at least 4.2 volts. In contrast, Nishikawa et al. teach an electrolyte having a chemical linkage between the oxygen (atom) of the carbonate and the carbon atom of the cyano group that is more than one carbon. As described above, if "a" is more than 1, namely the linkage between the oxygen (atom) of the carbonate and the carbon atom of the cyano group that is more than one carbon, the resulting electrolyte does not work for a lithium-ion battery. There is no teaching or suggestion in Nishikawa et al. that if an electrolyte is selected in which the carbonate is chemically bonded to the carbon of the cyano group through no more than one carbon than the nitrile will be electrochemically stable up to at least 4.2 volts. Accordingly, the invention defined by the present claims is not anticipated in view of Nishikawa et al.

In contrast to the invention defined by the present claims, Nishikawa et al. do not teach or suggest the present chemical structure of the nitrile compound. Accordingly, the invention defined by the present claims is not anticipated or obvious in view of Nishikawa et al.

The previously submitted claims 8, 14-16, 30-33, 22-28 were rejected under 35 U.S.C. § 102(b) as being anticipated by or under 35 U.S.C. § 103(a) as obvious in view of JP-2000-077096 to Kobayashi et al. in view of Nishikawa et al. Applicant submits that Kobayashi et al. do not teach or suggest each of the elements of the present claims.

Kobayashi et al. teach a non-aqueous electrolyte battery. The electrolyte solvent comprises cyanoethoxy compound represented by the general formula R-(OCH₂CH₂-CN)_n, e.g., CH₃OOCO-CH₂CH₂-CN as described in Example 8. The linkage between the oxygen (atom) of the carbonate and the carbon atom of the cyano group is two carbons (-CH₂CH₂-).

In contrast to the invention defined by the present claims, Kobayashi et al. do not teach or suggest the linkage is not more than 1 carbon. Thus, Kobayashi et al. do not teach or suggest the chemical structure of the nitrile compound of the present invention. Accordingly, the invention defined by the present claims is not anticipated or obvious in view of Kobayashi et al.

The previously submitted claims 8-16, 30-33, 22, 24-28 were rejected under 35 U.S.C. § 102(b) as being anticipated by or under 35 U.S.C. § 103(a) as obvious in view of JP 2000-243442 to Toriida et al. Applicant submits that Toriida et al. do not teach or suggest each of the elements of the present claims.

Toriida et al. disclose a non-aqueous electrolyte consisting of a compound having a cyanoethyl group expressed with a general formula R-(O)n-COO-CH₂CH₂-CN. The linkage between the oxygen (atom) of the carbonate (if "R" is a hydrocarbon group and "n" equals to 1) and the carbon atom of the cyano group is two carbons (-CH₂CH₂-).

In contrast to the invention defined by the present claims, Toriida et al. do not teach or suggest the linkage is not more than 1 carbon. Thus, Toriida et al. do not teach or suggest the chemical structure of the nitrile compound of the present invention. Accordingly, the invention defined by the present claims is not anticipated or obvious in view of Toriida et al.

In addition, as described in the Declaration of Luying Sun, Nishikawa et al. do not teach or suggest a non-aqueous electrolyte for use in a lithium-ion battery in which the carbonate is chemically bonded to the carbon of the cyano group through no more than one carbon and the nitrile is electrochemically stable up to at least 4.2 volts.

In view of the foregoing, Applicant submits that all pending claims are in condition for allowance and request that all claims be allowed. The Examiner is invited to contact the undersigned should she believe that this would expedite prosecution of this application. It is believed that no fee is required. The Commissioner is authorized to charge any deficiency or credit any overpayment to Deposit Account No. 13-2165.

Respectfully submitted,

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Diane Dunn McKay, Esq.
Reg. No. 34,586
Attorney for Applicant

MATHEWS, SHEPHERD, McKAY & BRUNEAU, P.A.
29 Thanet Road, Suite 201
Princeton, NJ 08540
Tel: 609 924 8555
Fax: 609 924 3036